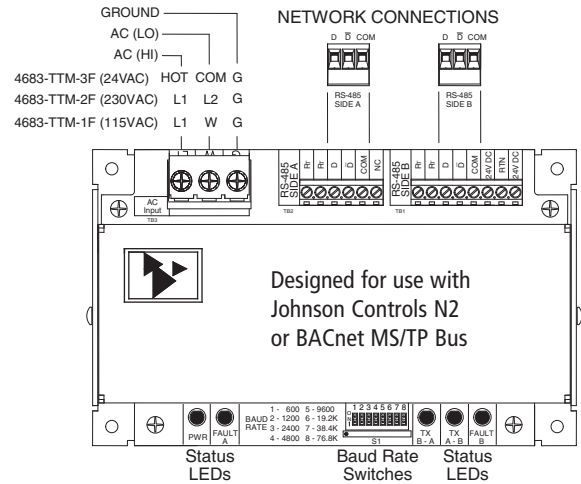


Network Accessories: 4683 Series

4683-TTM RS-485 to RS-485 Network Repeater

cUL US LISTED **24HR**



For N2 or BACnet MS/TP bus ♦ Drives up to 32 RS-485 devices ♦ Isolates and boosts signal up to 4000 ft.

Description

Models

4683-TTM-1F: 115V AC Power
4683-TTM-2F: 230V AC Power
4683-TTM-3F: 24V AC Power

Acromag's RS-485 network repeater device allows users to take full advantage of the RS-485 standard's extended communication distances and multi-dropping capabilities. In addition, these devices offer field selectable End-of-Line Network (EOLN) terminations on both the A and B networks.

Operation is transparent to all devices and no handshaking is required. Up to thirty-two RS-485 devices can be driven. Network repeaters are ready to mount on any base plate. Or, for a harsh environment, it can be installed in a NEMA enclosure of your choice. No enclosure is necessary for use in a laboratory or office. Installation requires mounting, connecting power and cables, and setting the baud rate.

Approvals

UL/cUL listed:
Energy management equipment

Key Features & Benefits

- Designed for use with Johnson Controls N2 or BACnet bus
- No handshaking
- No extra control lines
- I/O signal isolation
- Baud rates of 600, 1200, 2400, 4800, 9600, 19.2K, 38.4K, and 76.8K are switch selectable
- Field-selectable end-of-line network terminations on both A and B sides
- Electrical transient protection is provided. This protects the host computer from destructive noise spikes and other transient signals.
- Status LED's indicate transmission direction, RS-485 bus fault conditions, and power applied.
- 24/115/230V AC power available
- No separate transformer required with 24V AC units (4683-TTM-3F)

Operation

Model 4683-TTM-xF network repeaters isolate and boost RS-485 signals allowing communication signals to travel another 4000 ft. Each repeater permits the addition of another 32 unit load to a network.

The repeater has two RS-485 "sides" known as the A and B sides. The A side typically connects to the network towards the host and the B side connects to the extended network. Functionally, the A and B sides are equivalent.

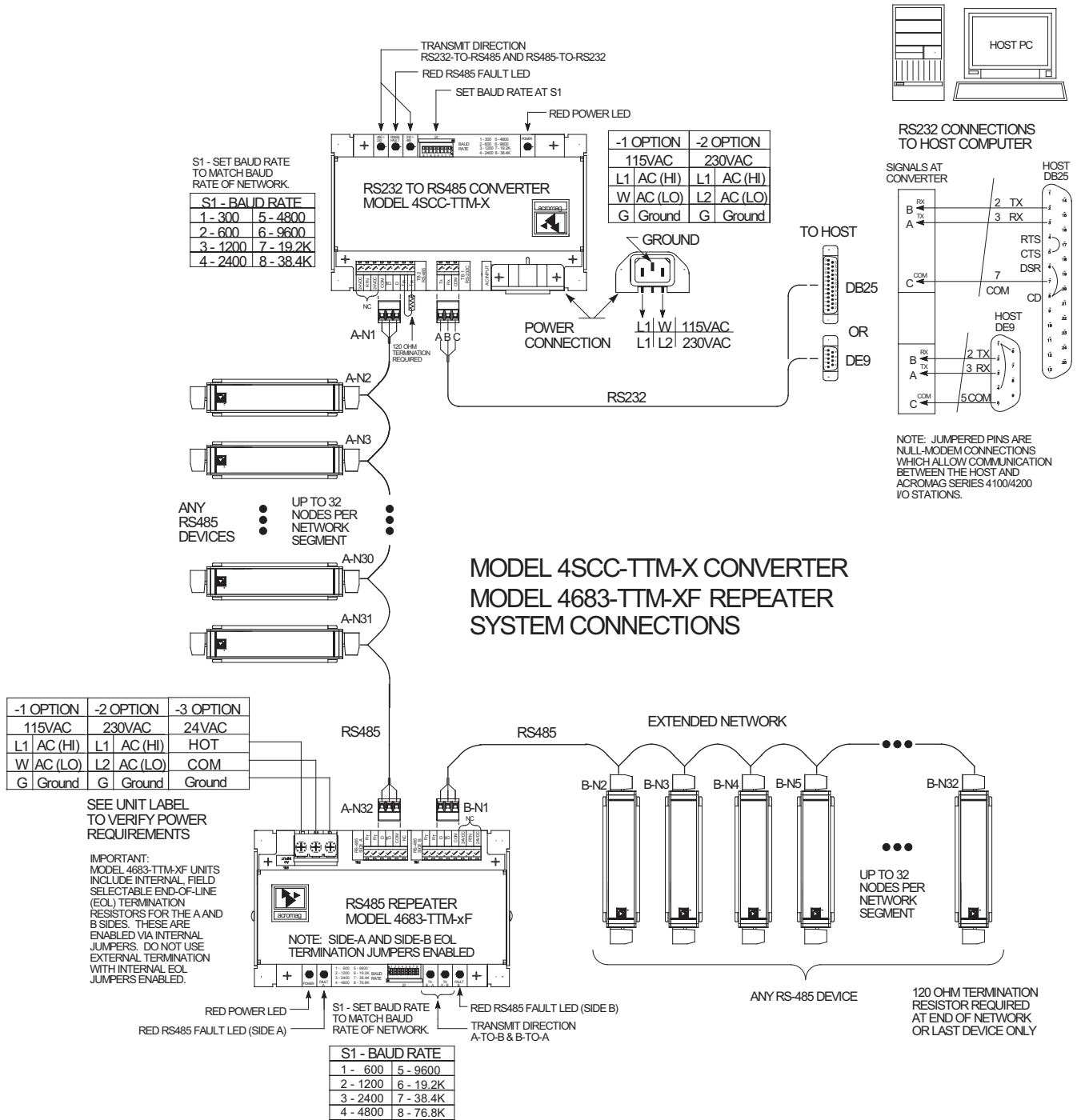
Repeaters receive AC power through a 3-screw terminal strip. Transient signal protection is provided on both RS-485 sides.

When both RS-485 lines are idle, each side is in receive mode. When a '1' to '0' transition is detected (signifying a start bit) on either side, the opposite side's transmitter is enabled. The transmitter stays enabled for one character's time (based on the baud rate switch setting). The received character is then passed through.

Acromag 
THE LEADER IN INDUSTRIAL I/O

Tel: 248-295-0880 ■ Fax: 248-624-9234 ■ sales@acromag.com ■ www.acromag.com ■ 30765 S Wixom Rd, Wixom, MI 48393 USA

Network Accessories: 4683 Series



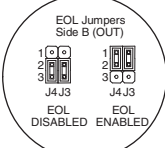
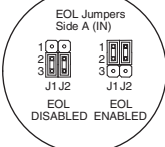
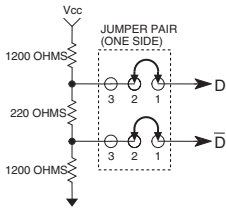
The system connection drawing is for general illustration purposes only. For Johnson Controls systems refer to the Metasys® Network Technical Manual for N2 Bus Communication or MS/TP Communications Bus Technical Bulletin for 4683-TTM-xF wiring connections.

Acromag 
 THE LEADER IN INDUSTRIAL I/O

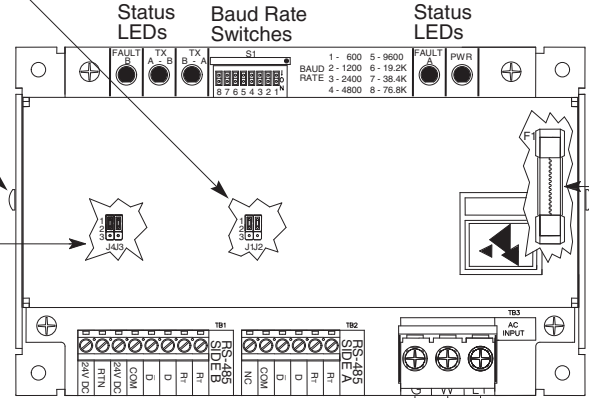


Network Accessories: 4683 Series

EOL JUMPERS EQUIVALENT CIRCUIT (4683 UNITS ONLY)



REMOVE THIS SCREW ON EACH SIDE TO REMOVE COVER

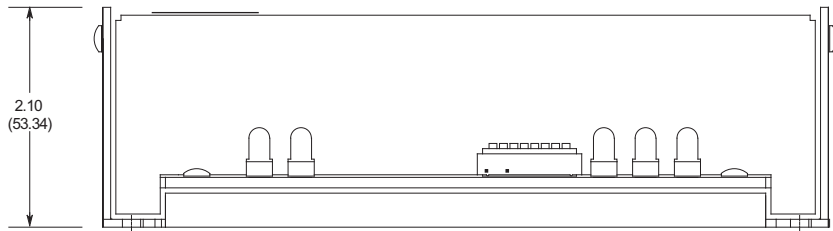
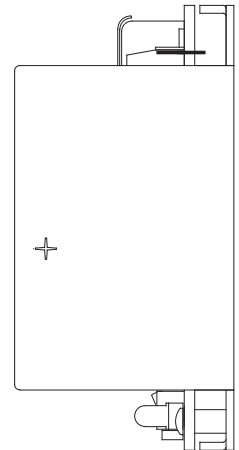
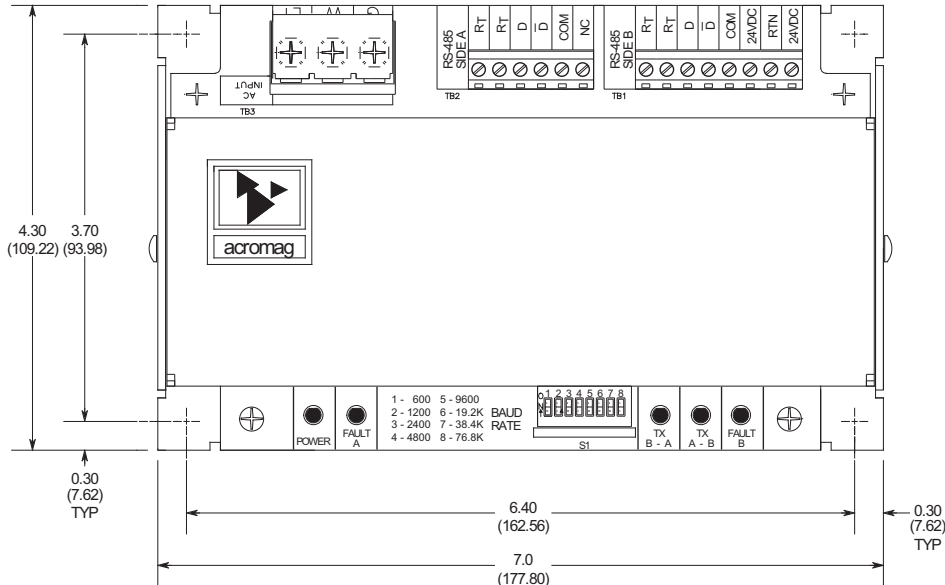
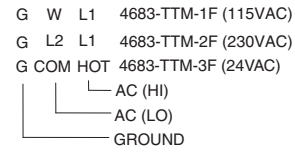


FUSE 3AG 0.5A, 250V

NOTE: -3F 24V AC units do not require a separate transformer. 24V AC power from the RS-485 devices may be used.

- MODEL 4683-TTM-1F REPEATER
 - MODEL 4683-TTM-2F REPEATER
 - MODEL 4683-TTM-3F REPEATER
- End-of-Line (EOL) Termination Jumper Locations.
Input Power Fuse Location.

NETWORK CONNECTIONS





Network Accessories: 4683 Series

Specifications

Communications Specifications

Baud Rates

Switch settings on unit for 600, 1200, 2400, 4800, 9600, 19.2K, 38.4K, and 76.8K baud rates. Switch must be in the proper baud rate position for proper operation.

RS-485 Bus Loading

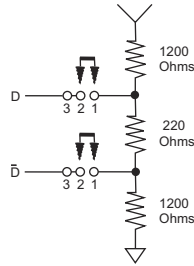
One unit load equivalent.

RS-485 Bus Drive

Complete RS-485 compliance for up to 32 unit loads (31 unit loads if a repeater is used).

End-of-Line Termination Network

The EOLN termination network is shown on the right and is individually selected on both the A and B sides by a pair of shorting clips. The A-side is controlled by jumper pair J1, J2 and the B-side is controlled by jumper pair J3 and J4.



The EOLN termination network is enabled for the A side or B side when the associated pair of jumpers are positioned over pins 1 and 2. Conversely, the EOLN is disabled (out of the circuit) when the pair jumpers are positioned over pins 2 and 3.

Duplex

Half duplex only.

Data Format

Ten bits typical (1 start bit, 8 data bits, and 1 stop bit). Other formats are supported.

Physical Specifications

Operating Temp. Range

-25 to 70° C (-13 to 158° F)

Storage Temp. Range

-25 to +85° C (-13 to 185° F)

Relative Humidity (RH)

10 to 95% RH (noncondensing), up to 40° C (104° F).

Power

4683-TTM-1F
115VAC ±10%, 50/60 Hz, 0.05A

4683-TTM-2F
230VAC ±10%, 50/60 Hz, 0.03A

4683-TTM-3F
24VAC ±10%, 50/60 Hz, 0.18A typical

Power Line Fuse

0.5A, 125V, 0.75A, 3AG type.

Isolation

Provides galvanic and opto-coupler isolation between RS-485(A), RS-485(B), AC power, and chassis ground. Common mode voltages are permitted up to 250V rms or 354V DC (withstands a 1500V AC dielectric strength test for 1 min. without breakdown) on a continuous basis. Complies with requirements outlined in ANSI C39.5-1974 for voltage ratings specified.

RFI Resistance

Withstands an RFI field strength of 10V per meter at 27 Mhz, 151 Mhz, and 467 Mhz with no digital effect, per SAMA PMC 33.1.

Line Noise Effects

Field and power line terminals withstand ANSI/IEEE C37.90-1978 Surge Withstanding Capability (SWC) Test with no component failures. Unit is tested to a standardized test waveform that is representative of surges (high-frequency transient electrical interference), observed in actual installations.

Communications Connections

Network repeater - both RS-485 connectors use modular terminal blocks with screw clamps. Wire range 14 to 26 AWG.

Power Wire Connections

Network repeater terminal block. See label on unit for power to be applied to unit.

Approvals

UL/cUL listed – energy management equipment.

Shipping Weight

3.0 pounds (1.4 kg) packed per unit.

Ordering Information

RS-485 to RS-485 Network Repeaters

4683-TTM-1F
115V AC Power

4683-TTM-2F
230V AC Power

4683-TTM-3F
24V AC Power

Accessories

See www.acromag.com for more information.

